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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/608,932	06/27/2003	Ian Stuart Robinson	NG(ST)-6422	6999

7590 12/17/2004
Christopher P. Harris
1111 Leader Building
526 Superior Avenue
Cleveland, OH 44114

EXAMINER

MAI, LAM T

ART UNIT	PAPER NUMBER
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2819

DATE MAILED: 12/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/608,932

Applicant(s)

ROBINSON ET AL.

Examiner

LAM T. MAI

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 24-29 is/are allowed.
- 6) ☒ Claim(s) 1-3, 6, 7, 11, 12, 15, 20, 21 and 23 is/are rejected.
- 7) ☒ Claim(s) 4-5, 8-10, 13-14, 16-19, 22 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>8/04/6/03</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 15, and 23 is rejected under 35 U.S.C. 102(b) as being anticipated by piesinger (USP 5870047).

Regarding claim 1 and 23, Piesinger discloses in figures 1 and 5 a signal conversion system that teaches a memory system (70) to provide a set of digital output samples in response to a given digital input sample and an aggregator (MUX) that aggregates the output samples and provided an aggregated output stream signal at a desired output sample rate, which is different from an input sample rate (see col. 7, line41-67, and col. 8 and 9).

Regarding claim 15, Piesinger discloses in figure 1 a signal conversion system that teaches a buffer (shift register) and a look up table (address memory element) and

an aggregator (mux) (specification defines an aggregator can be a multiplexer, page 2, line 18) and a digital converter (dac) (see figure 1, col. 1).

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 1-3 are rejected under 35 U.S.C. 102(e) as being anticipated by Panasik et al (USP 6489908).

Regarding claim 1, Panasik discloses in figure 6 a signal conversion system that teaches a memory (110) to provided a set of digital output samples in resoponse to a given digital input sample and a an aggregator (summing or multiplexing) that aggregates the output samples and provided an aggregated output stream signal. Figure 6 shown multiple output of DAC being summed together then provide output signal (see col. 5, lines 50-67 and col. 6).

Regarding claim 2, Panasik teaches that the memory system being programmed to provided N output samples that represent delta sigma modulated data (col. 5, lines 53-54).

Regarding claim 3, Panasik teaches that the memory system operating at a rate that is less than the desired output sample rate (col. 6 lines 9-21).

Regarding claim 6, Panasik teaches that data stored in the memory system can be compressed data (see col. 5, line 63).

Regarding claim 7, Panasik teaches data having been compressed by delta sigma modulation (see col 5, line 54).

Regarding claim 11, Panasik teaches that the aggregated output stream signal being converted by a digital analog converter (120,122,124,126,130). (see figure 6, col. 5 and 6).

Regarding claim 12, Panasik discloses in figure 9 a transmitter in combination with an antenna (see col. 7).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Piesinger as applied to claim 15 above, and further in view of Panasik et al (USP 6489908).

Regarding claim 20, Piesinger fails to teach data stored in the memory system being compressed data. While, Panasik teaches that data stored in the memory system is compressed if it is necessary to minimize number of storage cell (col. 5 line 63) Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to integrated compressed data in the memory system for space saving.

Regarding claim 21, Piesinger fails to teach data stored in the memory system having been compressed by delta sigma modulation. While, Panasik teaches that data stored in the memory system is compressed if it is necessary to minimize number of storage cell and data is compress by delta sigma modulation (col. 5, lines 54)

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Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to integrated compressed data in the memory system for space saving.

Allowable Subject Matter

Claims 4 and 5 are objected to as being dependent upon a rejected base claim, but they would be considered for allowable if they are rewritten in independent form including all of the limitations of the base claim and any intervening claims. Objected claims features are not taught or suggested in the prior art.

Claims 8-10 are objected to as being dependent upon a rejected base claim, but they would be considered for allowable if they are rewritten in independent form including all of the limitations of the base claim and any intervening claims. Objected claims features are not taught or suggested in the prior art.

Claim 13 is objected to as being dependent upon a rejected base claim, but it would be considered for allowable if it is rewritten in independent form including all of the limitations of the base claim and any intervening claims. Objected claims features are not taught or suggested in the prior art.

Claim 14 is objected to as being dependent upon a rejected base claim, but it would be considered for allowable if it is rewritten in independent form including all of the limitations of the base claim and any intervening claims. Objected claims features are not taught or suggested in the prior art.

Claims 16-17 are objected to as being dependent upon a rejected base claim, but they would be considered for allowable if they are rewritten in independent form

including all of the limitations of the base claim and any intervening claims. Objected claims features are not taught or suggested in the prior art.

Claims 18-19 are objected to as being dependent upon a rejected base claim, but they would be considered for allowable if they are rewritten in independent form including all of the limitations of the base claim and any intervening claims. Objected claims features are not taught or suggested in the prior art.

Claim 22 is objected to as being dependent upon a rejected base claim, but it would be considered for allowable if it is rewritten in independent form including all of the limitations of the base claim and any intervening claims. Objected claims features are not taught or suggested in the prior art.

Claims 24-26 are allowable. The prior art fails to teach or suggest a second means for storing up data representing delta sigma modulated outputs.

Claims 25-26 are allowable. The prior art fails to teach or suggest a method that implement a memory device is operative to emulate the delta sigma modulation by providing a corresponding vector of the output samples in response to each of the input samples.

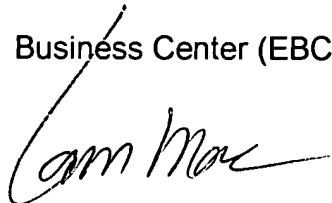
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LAM T. MAI whose telephone number is (571)272-1807. The examiner can normally be reached on 6:00 am - 4:00pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Tokar can be reached on (571) 272-1812. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "Lam Mai", with a stylized flourish at the end.

Lam T. Mai
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